

U.S. Patent Application Serial No. 10/537,911  
Amendment filed December 30, 2008  
Reply to OA dated September 3, 2008

### **REMARKS**

Claims 1-30 are pending in this application. Claim 3 is canceled without prejudice or disclaimer, and claims 1 and 2 are amended herein. Upon entry of this amendment, claims 1, 2 and 4-30 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims is as follows:

Claim 1 has been amended: "... an opening hole bored [[at]] in the support plate ...." This represents a correction to improve the English usage, and is fully supported, for example, by the structure in Fig. 3 of the present application, which shows opening hole 9 in support plate 10.

Claims 1 and 2 have also been amended to recite a pair of heat conductors formed of a plate-like member and arcuate portions bent from both ends of the plate-like member. Support for this structure of the heat conductor may be found in original claim 3, and support for the recitation of a "pair of heat conductors" may be found in the disclosure of "heat conductors 12A and 12B" (page 13, line 6), as illustrated, for example, in Fig. 6.

That is, as shown by drawings, the heat conductors 12 are formed of a plate-like member 12b and arcuate portions 16 from both ends of the plate-like member 12b so that the transformation of the heat conductors 12 is not limited to a gap in a central end portions of the arcuate portions 16, but is further possible by overlapping of the central end portions.

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By this large transformation, first, the heating element 13 including a pair of the heat conductors 12 is narrowed so that those are inserted more easily into a rod 15.

Second, since it is possible to insert the heating the element 13 easily by utilizing large transformation of the heat conductors 12, the radius of the arcuate portions 16 can be made greater so as to closely contact the arcuate portions 16 with the inside of the rod 15, which results in an increase in heat transfer efficiency.

In summary, the structure of the heat conductors 12 formed of a plate-like member 12b and arcuate portions 16 from both ends of the plate-like member 12b not only makes it easy to insert inside of the rod 15, the heating element 13 including the heat conductors 12, but also enhances heat transfer efficiency from the heating element 13 to the rod 15.

**Claims 1-3, 5-7, 17, 19-21 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 4-108004 (IDS cited reference). (Office action p. 2)**

Reconsideration of the rejection is respectfully requested. As noted above, claims 1 and 2 have been amended to recite "a pair of heat conductors formed of a plate-like member and arcuate portions bent from both ends of the plate-like member."

In the rejection, the Examiner cites FIGS. 1-4 of the reference as disclosing a hair curler meeting the limitations of claim 1, with reference numeral 1 assigned as a "heating heater," reference numeral 2 as the support plate, and reference numeral 6 as the cap. The Examiner states that the figures show the opening hole and heat conductors fixed to terminals.

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Applicant notes that JP '004 discloses a hair curler in which a plate-like PTC ceramic heater 1 is sandwiched between metal heat conductors 2 in a semicylindrical shape.

In regard to claim 1, Applicant submits that it is apparent from FIGS. 1 and 2 of JP '004 that the heaters 1 are sandwiched between the rectangular surfaces 10 having **no hole** therein. This may be compared, for example, to Fig. 3 of the present application, showing opening hole 9 in support plate 10. That is, JP '004 does not disclose the opening hole bored in the support plate as recited in claim 1.

Moreover, JP '004 does not disclose the structure of the heat conductors of amended claims 1 and 2: "a pair of heat conductors formed of a plate-like member and arcuate portions bent from both ends of the plate-like member."

As shown by FIG. 2 of the reference, between the cylindrical portion 11 and the rectangular surface 10, a gap 12 is formed. Accordingly, the transformation of the cylindrical portion 11 is limited to a distance of the gap 12 and consequently the metal heat conductors 2 do not narrow so much, and thus it is not easy to cover with the inside covers 5 and 6 as shown by FIG. 3.

In order to be covered with the inside covers 5 and 6 more easily, the radius of the cylindrical portions 11 must be made smaller. However, as the radius of the cylindrical portions 11 becomes smaller, a gap between the cylindrical portions 11 and the inner surface of the outside case 7 becomes larger, resulting in a decrease in heat transfer efficiency.

Therefore, the present invention differs from JP '004 in structure and effects (usability and heat transfer efficiency) and thus the pending claims are not anticipated by JP '004.

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**Claims 4 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP '004 in view of JP 4-103803 (IDS cited reference).** (Office action p. 2)

Reconsideration of the rejection is respectfully requested in view of the amendments to claims 1 and 2.

The Examiner cites JP '004 as above, and cites JP '803 for disclosing "a hair curler having a heat conductor in contact with the heater is formed into a projecting surface." The Examiner states that it would have been obvious to modify the hair curler of JP '004 to have the projecting surface as taught by JP '803.

In addition to the differences between amended claims 1 and 2 and JP '004, discussed above, Applicant notes that JP '803 discloses a hair curler comprising:

a heating plate 1 having a first corrugated portion 3 in which a PTC heater 2 is embedded,  
a pinching plate 4 having a second corrugated portion 5 engaging the first corrugated portion 3, and  
the pinching plate 4 being secured rotationally to the heating plate 1.

In the hair curler of JP '803, between the first corrugated portion 3 and the second corrugated portion 5, hair is pinched and heated to easily form curls.

The Examiner states that JP '803 discloses a hair curler having a heat conductor in contact with the heater is formed into a projecting surface (FIG. 1).

However, as is apparent from the comparison of FIG. 2, FIG. 4(b), FIG. 5(b) and FIG. 6 of the present invention to FIG. 1 of JP '803, the structure of the present invention including **projecting**

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**surface 12a** (see FIGS. 4(b), 5(b) and 6) is not disclosed in JP '803. Specifically, in the drawings of the present application, the PTC ceramic heater 2 is sandwiched between dents formed in the heating plate 1 and the projecting surface 12a. By contrast, the dents in JP '803 are not consistent with the projecting surface in the present claims.

Claims 4 and 18 are therefore not obvious over JP '004 and JP 4-103803, taken separately or in combination.

**Claims 8-10 and 22-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP '004 in view of JP 9-23920 (IDS cited reference).** (Office action p. 3)

Reconsideration of the rejection is respectfully requested in view of the amendments to claims 1 and 2.

The Examiner again cites JP '004 as disclosing the limitations of the base claims, and cites JP '920 for disclosing a hair curler having a rod with a diameter at the center being smaller than those at both ends. The Examiner states that it would have been obvious "to construct the particular rod as taught by JP '920 into the hair curler of JP '004 for the intended use purpose. And it would have been obvious ... to construct the rod formed in an arcuate shape, since such a modification would have involved a mere change in the shape of the non critical (specification page 4, lines 2-5 component. A change in shape is generally recognized as being within the level or ordinary skill in the art In re Rose, 10 USPQ 237 (CCPA 1955)."

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However, Applicant has argued above that JP '004 does not disclose the opening hole structure of claim 1, and does not disclose the heat conductor structure recited in amended claims 1 and 2.

JP '920 merely discloses a hair curler having a rod with a diameter at the center being smaller than those at both ends, and fails to disclose a pair of heat conductors formed of a plate-like member and arcuate portions bent from both ends of the plate-like member. Applicant has obtained and here attaches a machine-translation of JP 9-23920 to clarify the teaching of this reference.

Therefore, the present claims are not obvious over JP '920 and JP '004, taken separately or in combination.

**Claims 11, 12, 25 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over [JP '004] in view of JP 3-045250 (IDS cited reference). (Office action p. 3)**

Reconsideration of the rejection is respectfully requested in view of the amendments to claims 1 and 2.

The Examiner again cites JP '004 for disclosing the limitations of the base claims, and cites JP '250 for disclosing a hair curler having a "far infrared radioactive substance." The Examiner states that it would have been obvious "to construct the far infrared substance as taught by JP '250 into the hair curler of JP '004 in order to avoid damage to the hair."

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However, Applicant has argued above that JP '004 does not disclose the opening hole structure of claim 1, and does not disclose the heat conductor structure recited in amended claims 1 and 2.

JP '250 merely discloses a hot curler generating an anion from a multi element mineral powder, and fails to disclose a pair of heat conductors formed of a plate-like member and arcuate portions bent from both ends of the plate-like member. Applicant has obtained and here attaches a machine-translation of JP 3-045250 to clarify the teaching of this reference.

Claims 11, 12, 25 and 26 are therefore not obvious over JP '004 and JP '250, taken separately or in combination.

**Claims 13-16 and 27-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP '004 in view of JP 2-798374 (IDS cited reference). (Office action p. 4)**

Reconsideration of the rejection is respectfully requested in view of the amendments to claims 1 and 2.

The Examiner cites JP '004 as above, and cites JP '374 for disclosing a curler disconnectedly connected to a cord extending from a distributor.

However, Applicant has argued above that JP '004 does not disclose the opening hole structure of claim 1, and does not disclose the heat conductor structure recited in amended claims 1 and 2.

Moreover, Applicant has discussed JP '374 in the "BACKGROUND ART" on pages 1 and 2 of the present specification, pointing out numerous drawbacks as summarized below (Applicant has obtained and here attaches a machine-translation of JP 2-798374 to clarify the teaching of this reference):

- (a) A ceramic pipe is used in the hair curler and thus the weight of the device is very heavy,
- (b) To reduce the heavy weight, the hair curler has to be suspended by the string hooked on the hook disposed at the tip of the hair curler (FIGs. 1 and 2 of JP '374). As a result, the operation becomes cumbersome and the cord and the string are crossed and entangled, which disturbs usability,
- (c) Due to the heavy weight, one hair curler is suspended from one cord (FIG. 1 of JP '374). Accordingly, the number of cords increases not only making the device complicated, but decreasing usability, and
- (d) The device is so heavy that the operation has to be carried out with tension in a suspended state by adjusting the length of the string unreel from the winding drum or hooking the suspended string on the hooks, lest the weight be exerted directly on the head of the client. Accordingly, the client is forced to keep his/her original posture from beginning to end of the operation without freedom to move.

The present invention has solved the above problems by reducing the weight of the hair curler by employing a lightweight material, a heat resistant plastic in place of heavy material, ceramic and simplifying the structure, whereby

- (a) it becomes possible to connect a plurality of hair curlers to a single cord,



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(b) the number of cords and strings can be reduced to thus avoid crossing and entangling of such cords and strings so that the device construction becomes very simple and usability is also enhanced,

(c) the operation becomes possible to perform with the cord loosened in a relaxing state so that the client is not forced to keep the same posture until the end of the operation and can vary his/her posture freely.

Therefore, JP '374 has numerous drawbacks that are, in fact, solved by the present invention. There is no disclosure in JP '374 of those features of the present invention not disclosed in JP '004.

Claims 13-16 and 27-30 are therefore not obvious over JP '004 and JP '374, taken separately or in combination.

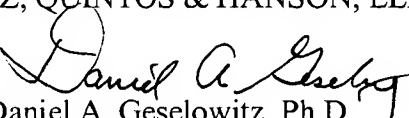
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Petition for Extension of Time  
Machine translations of JP 9-23920  
JP 3-045250  
JP 2-798374

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